Claims

1. A dehydrogenation catalyst comprising from about 50 to about 90 percent by weight of eta alumina, from about 10 to about 30 percent by weight of a chromium compound, and from about 0.1 to about 5 percent by weight of a zirconium compound, added as a stabilizing material.

2. The dehydrogenation catalyst of Claim 1 wherein the eta alumina comprises from about 70 to about 90 percent of the catalyst by weight.

3. The dehydrogenation catalyst of Claim 1 wherein the chromium compound comprises chromium oxide and comprises from about 15 to about 25 percent of the catalyst by weight.

4. The dehydrogenation catalyst of Claim 1 wherein the zirconium compound comprises from about 0.1 to about 1 percent of the dehydrogenation catalyst by weight.

5. The dehydrogenation catalyst of Claim 1 wherein the surface area of the catalyst is from about 120 to about 60 m^2/g.

6. The dehydrogenation catalyst of Claim 1 further comprising an alkali metal additive.

7. The dehydrogenation catalyst of Claim 6 wherein the alkali metal is selected from the group consisting of potassium, sodium and cesium.

8. The dehydrogenation catalyst of Claim 6 wherein the alkali metal comprises potassium.

9. The dehydrogenation catalyst of Claim 6 wherein the alkali metal comprises sodium.

10. The dehydrogenation catalyst of Claim 6 wherein the alkali metal comprises cesium.

11. A method for the preparation of a dehydrogenation catalyst comprising

preparing an eta alumina carrier, impregnating the eta alumina carrier with a chromium compound, impregnating the chromium impregnated carrier with a zirconium compound as a stabilizer, calcining the impregnated carrier material to form the dehydrogenation catalyst,

wherein the chromium material comprises from about 10 to about 30 percent of the catalyst by weight and wherein the zirconium material comprises from about 0.1 to about 5 percent of the catalyst by weight.

12. The method of Claim 11 wherein the catalyst comprises from about 70 to about 90 percent by weight eta alumina, from about 15 to about 25 percent by weight chromia and from about 0.1 to about 1 percent by weight zirconia, as a stabilizing material.

13. The method of Claim 11 wherein the composition of the catalyst further comprises from about 0.1 to about 5 percent by weight of an alkali metal additive.

14. The method of Claim 13 wherein the alkali metal is selected from the group consisting of potassium, sodium and cesium.

15. The method of Claim 14 wherein the alkali metal comprises potassium.

16. The method of Claim 14 wherein the alkali metal comprises sodium.

17. The method of Claim 14 wherein the alkali metal comprises cesium.

18. A method for the preparation of a dehydrogenation catalyst comprising

preparing an eta alumina carrier, coimpregnating the eta alumina carrier with a chromium compound and a zirconium compound as a stabilizer, calcining the impregnated carrier material to form the dehydrogenation catalyst,

wherein the chromium material comprises from about 10 to about 30 percent of the catalyst by weight and wherein the zirconium material comprises from about 0.1 to about 5 percent of the catalyst by weight.

19. The method of Claim 18 wherein the catalyst comprises from about 70 to about 90 percent by weight eta alumina, from about 15 to about 25 percent by weight chromia and from about 0.1 to about 1 percent by weight zirconia, as a stabilizing material.

20. The method of Claim 18 wherein the composition of the catalyst further comprises from about 0.1 to about 5 percent by weight of an alkali metal additive.

21. A method of dehydrogenating a hydrocarbon feed stream comprising passing the hydrocarbon feed stream over the catalyst of Claim 1.

22. The method of Claim 21 wherein the feed stream comprises C3 to C5 hydrocarbon.

23. The method of Claim 22 wherein the feed stream further comprises isobutane.